

COMMUNICATION SYSTEM USING GEOGRAPHIC POSITION DATA
ABSTRACT OF THE DISCLOSURE

A wireless communication system employs directive antenna arrays and

5 knowledge of position of users to form narrow antenna beams to and from desired users and away from undesired users to reduce co-channel interference. By reducing co-channel interference coming from different directions, spatial filtering with antenna arrays improves the call capacity of the system. A space division multiple access (SDMA) system allocates a narrow antenna beam pattern to each user in the system so

10 that each user has its own communication channel free from co-channel interference. The position of the users is determined using geo-location techniques. Geo-location can be derived via triangulation between cellular base stations or via a global positioning system (GPS) receiver. The system can be optimized by applying partially adaptive processing algorithms, which are seeded by geo-location data.